

**REMARKS/ARGUMENTS**

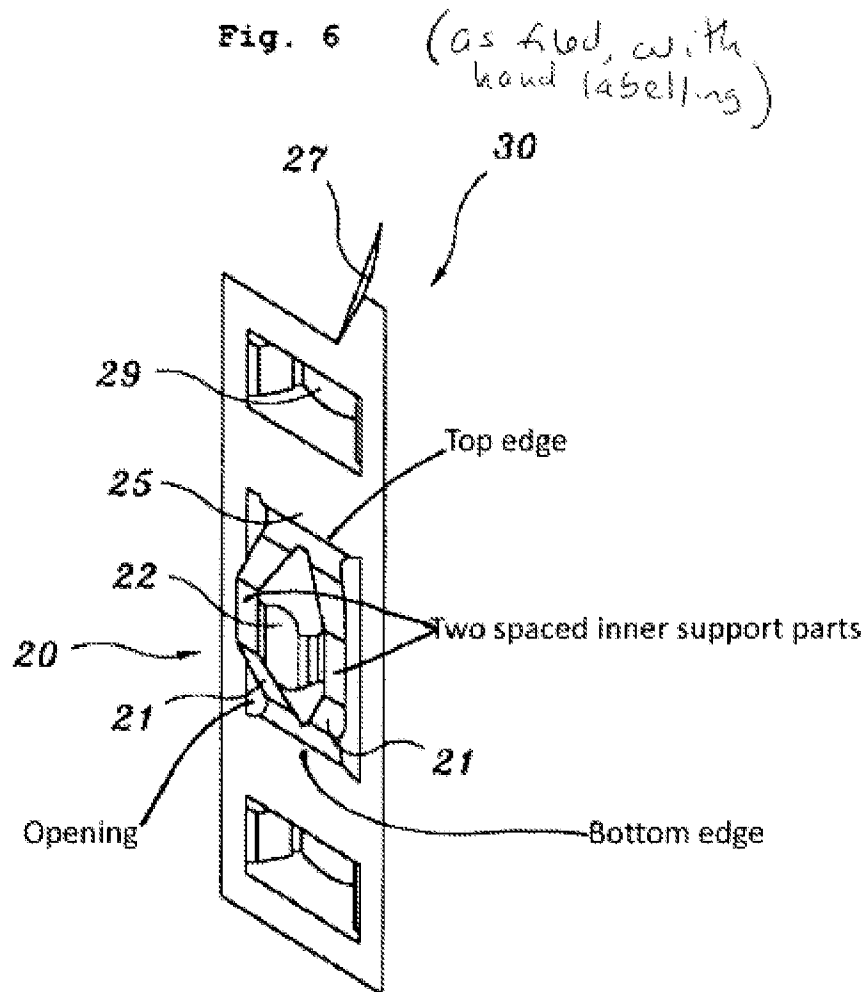
This paper is submitted responsive to the Office Action mailed June 9, 2009. Reconsideration of this application in light of the accompanying remarks and amendments is courteously solicited.

Initially, the undersigned would like to comment on the Interview Summary Record issued by the Examiner following telephone interviews on August 31, 2009 and September 9, 2009. Unfortunately there was no agreement reached at these interviews. A further summary is presented below to complete what the applicant considers relevant as to the interview.

The undersigned requested the interview in the hopes of resolving the formal matters in the office action, that is, the rejections under 35 USC 112, first and second paragraph. This was explained in the context that there have been numerous office actions and that fairness to the applicant would dictate a more streamlined and clear examination, leading either to agreement on the question of patentability or an appeal in a reasonably direct route. The undersigned mentioned concern at the number of formal issues raised in the course of this application, and the record can speak for itself on that issue. In the meantime, there are currently pending rejections under 35 USC 112, first paragraph, based upon lack of written description, where the features in question are clearly shown in the drawings. This was the important point to be discussed at the interview, and yet the Examiner's summary record pays little attention to this point. When inquiry was made as to exactly what from the claim language was not supported by the specification (including the drawings), the only answer given was that some other personnel had been consulted, and that they agreed the rejections were proper. Much time at the interview was spent on topics other than the intended 112 first paragraph

rejections, despite the repeated requests by the undersigned to stay focused on the point for which the interview was requested. In any event, reconsideration of the rejections under 35 USC 112, first and second paragraphs, is requested for the reasons which follow.

Paragraph 6 of the office action rejects claims 10-20 based upon the language from claim 15 reciting: "two spaced inner support parts extending vertically in the opening between the top and bottom edges of the opening". This subject matter is fully disclosed in Figure 6, reproduced below:



The language complained of by the Examiner is clearly shown at element 21, each of which extends vertically between top and bottom edges of the opening. These components are labeled in the drawing for ease of understanding. The Examiner somehow insists that this drawing shows one support extending vertically and the other extending horizontally. This is not at all understood. Further, it is submitted that Figure 6 is ample written support for the claim limitation. It is noted that MPEP 2163 sets forth information concerning the written description requirement, and makes clear that "[a]n applicant may show possession of an invention by disclosure of drawings or structural chemical formulas that are sufficiently detailed to show that applicant was in possession of the claimed invention as a whole. See, e.g., *Vas-Cath*, 935 F.2d at 1565, 19 USPQ2d at 1118 ("drawings alone may provide a 'written description' of an invention as required by Sec. 112\*"); *In re Wolfensperger*, 302 F.2d 950, 133 USPQ 537 (CCPA 1962) (the drawings of applicant's specification provided sufficient written descriptive support for the claim limitation at issue)".

The claimed features are clearly present in Figure 6. There is ample description of this feature and therefore the claim language is proper under 35 USC 112, first paragraph. Withdrawal of the rejection of claims 10-20 on this basis is therefore respectfully requested.

Paragraph 7 of the office action recites a rejection of claim 20 under 35 USC 112, first paragraph, based upon the "claimed spacing of the spaced inner support parts from the side edges of the opening". Again, this is clearly shown in Figure 6. The opening is framed by the side edges, and there is a space between the side edge and the inner support part. Only one of these spaces can be seen in Figure 6, but it is obvious that the drawing is symmetrical, and therefore that there is also a space

between the other inner support part and the side edge on the left side of the figure. As with the subject matter dealt with in the office action in paragraph 6, the drawings provide clear support for the claim language and there is therefore no basis to reject this claim under 35 USC 112, first paragraph. Withdrawal of the rejection is respectfully requested.

Section 8 of the office action rejects claims 21-24 for the same reason as claim 10-20 in section 6. See above for response to this argument, which is not reprinted here for the sake of brevity.

Section 9 of the office action rejects claims 25-26 for the same reason as claim 10-20 in section 6. See above for response to this argument, which is not reprinted here for the sake of brevity.

In section 10 of the office action, claim 22 is rejected under 35 USC 112, first paragraph, as lacking written description of the claim language "wherein the guide vanes are shaped differently from the guide taps". Figure 5B shows these features at reference numerals 57 and 58. Clearly, they are of different shape in Figure 5B. The Examiner asserts that the drawings are insufficient to conclude difference in shape. This defies logic, as in fact they are different in shape. Figure 5B is sufficient disclosure to support claim 22, and the rejection should be withdrawn.

Section 11 of the office action rejects claim 23 based upon the limitation "wherein the mixing blades are shaped differently from the guide vanes and the guide taps". As discussed above, Figure 5B clearly illustrates the guide vanes and guide taps. The mixing blades are shown at 27 in Figure 6, for example. Since Figure 6 shows an angled straight edged structure which is completely different from the shapes of elements 57 and 58 of Figure 5B, it is again clear that the drawings provide ample

support for the claim as written, and the Examiner should withdraw this unsupported rejection.

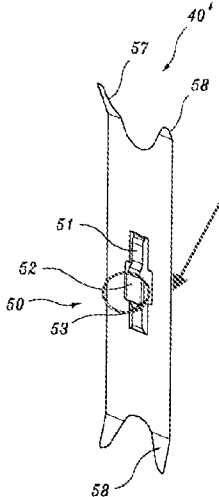
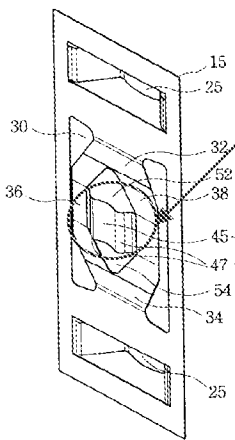
Section 12 of the office action rejects claim 24 based upon the claim language "wherein the guide taps defined along the perimeter strips have an arch-shaped edge with no point, and wherein the guide vanes extend to a point". As set forth above, these structures are clearly illustrated at 57 and 58 in Figure 5B. Despite the Examiner's assertions concerning a "point cusp", the drawings show precisely the simple and clear claim language. There is no need whatsoever to engage in analysis concerning "point cusps" other than to overly complicate the issue in an attempt to render the clear language of claim 24 unclear. Again, Figure 5B shows exactly what is claimed, and the rejection should be withdrawn.

Sections 14-20 are rejections under 35 USC 112, second paragraph which mirror the rejections discussed above under 35 USC 112, first paragraph. Since it is submitted that each of the above rejections under 35 USC 112, first paragraph is incorrect and should be withdrawn, withdrawal of the rejections under 35 USC 112, second paragraph is likewise proper.

Claims 10, 15, 17, 18 and 20 were rejected under 35 USC 103(a) as obvious based upon a combination of Oyama et al. in view of Yoon et al. Reconsideration of this rejection is earnestly solicited.

Claim 15 calls for "the fuel rod support part (52) being bent to have equiangular surface contact with a fuel rod supported by the grid spring for reducing fretting corrosion of the fuel rods".

The Examiner suggests that this is shown in Yoon et al. at Figure 7. A comparison of Figure 7A of the present application as compared to Figure 7 of Yoon is set forth below.

The present invention(referring to fig. 7A)	Yoon et al.(referring to fig. 7)
<p data-bbox="435 344 500 365">Fig. 7A</p>  <div data-bbox="583 480 818 743" style="border: 1px solid black; padding: 5px;"> <p>The fuel rod support part (50) of the <u>perimeter strips</u> being bent to have equiangular surface</p> </div>	<p data-bbox="1068 344 1138 365">Figure 7</p>  <div data-bbox="1170 459 1395 722" style="border: 1px solid black; padding: 5px;"> <p>The fuel rod support part (50) of the <u>inner strips</u> being bent to have equiangular surface</p> </div>

Even though the Examiner indicated that Yoon et al. teaches this subject matter, and cites paragraphs [0062], [0070] and [0071] of Yoon et al., it is noted that none of the art of record, including Yoon et al., suggest that the equiangular surfaces of the fuel rod support part (50) located at the perimeter strips.

The shape of spring between the perimeter strips and the inner strips are different, as shown in the comparison of the above figures. Also, the strength of the spring between the perimeter strips and the inner strips is different by the maximum load applied. Therefore, the fuel rod support part of the perimeter strips of the present invention is distinguishable from the fuel rod support part of the inner strips of Yoon et al.

Further, the fuel rod support part(50) of the present invention can reduce fretting corrosion of the fuel rod located

near the perimeter strips. Yoon et al cannot reduce fretting corrosion of the fuel rod located near the perimeter strips, since Yoon et al does not disclose equiangular surface of the fuel rod support part(50) which is located at the perimeter strips.

Further, the characteristics of a "guide tap (58) projecting downward on a lower edge of each of the unit corner strips (40") for reducing interference between the fuel rods (125) and the spacer grid (10) when the fuel rods (125) are being inserted and removed" is believed patentable.

The Examiner indicated claims 16 and 19 were taught by Oh et al, De Mario et al and Nguyen et al.

However, the Examiner's citation to col.7, lines 1-14 of Oh et al is totally different from the guide tap of claims 11, 12, and 14, since Oh et al. merely disclose the swirl flow vane which has different height for reducing the pressure loss and just enhancing the mixing flow (referring to col.7, lines 15-23 of Oh et al), but the object of the guide tap described on claims 11, 12 and 14 is for reducing interference between the fuel rods and the spacer grid during an insertion or removal of the fuel rods into or from the reactor core (referring to the last part of par.[0015] of the specification of the present invention).

For emphasizing the difference of the present claims from the cited references, the object of the guide tap for reducing interference has been added to claims 15 and 21.

Referring to the Examiner's reliance on Fig. 3, col.5, lines 19-24, col. 8, lines 28-34 of DeMario et al, this teaching is totally different from claims 11, 12 and 14, since DeMario there only discloses the mixing vane for enhancing heat flux (referring to col.5, lines 19-24).

Further, referring to the Examiner's reliance on Figs. 1

and 2, col.5, line 10-43 of Nguyen et al, this too is totally different from claims 11, 12 and 14, since Nguyen et al only discloses the mixing vane for balancing hydraulic force and enhancing mixing flow (referring to the last part of abstract of the Nguyen et al).

Consequently, it is submitted that none of the cited reference teach the guide tap for reducing interference between the fuel rods and the spacer grid during an insertion or removal, and likewise do not disclose the rounding shape of the guide tap.

Claims 16 and 21 contain the limitation that "the vertical support part has a higher spring strength than the two spaced inner support parts for accomplishing the soundness of the spacer grid due to the maximum load caused by the cross flows of the coolant which is applied to the vertical support part, wherein the spring strength is the ratio of force to displacement in elastic material" (referring to Fig. 9).

The Examiner indicated claims 16 and 19 are taught by Mayet et al and Fouls et al. However, if we refer to the Examiner's reliance upon col.1, lines 23-27 of Mayet et al, this teaching is totally different from claims 16 and 19, since it just discloses Zircaloy-4 as the material of the strap which is subjected to a high level of neutron flux. The object of the vertical support part of the outer grid spring having a higher strength than the inner support part of inner spring as claimed in claims 16 and 19 is not at all taught. The claimed structure efficiently supports cross flows of the coolant which exerts a maximum load on the perimeter strips as set forth at paragraphs [0037] and [0040] of the specification.

Also, turning to the Examiner's reliance on col.7, lines 10-16 of DeMario et al, this too is totally different from claims 16 and 19, since it just discloses Zircaloy-4 of the fuel



pellets which of course is not the spring part.

Further, if we refer to the Examiner's reliance upon col.9, line 61-col.10, line 8 of Fouls et al, this also is totally different from claims 16 and 19, since Fouls just discloses the spring constant which supports the two type fuel rods being Zircaloy tubing and steel tubing.

Therefore, none of the art of record teach or suggest that the vertical support part of the outer grid spring should have a higher strength than the inner support part of inner spring as called for in claims 16 and 19. Further, this structure is for efficiently supporting cross flows of the coolant which is loaded maximum load on the perimeter strips.

An earnest and thorough attempt has been made by the undersigned to resolve the outstanding issues in this case and place same in condition for allowance. If the Examiner has any questions or feels that a telephone or personal interview would be helpful in resolving any outstanding issues which remain in this application after consideration of this amendment, the Examiner is courteously invited to telephone the undersigned and the same would be gratefully appreciated.

It is submitted that the claims as pending herein patentably define over the art relied on by the Examiner and early allowance of same is courteously solicited.

This paper is accompanied by authorization to charge a one month extension of time fee. It is believed that no other fee is due in connection with this response. If any fees are required, please charge same to Deposit Account No. 02-0184.

Respectfully submitted,  
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